MULTISOLVING AT THE INTERSECTION OF HEALTH AND CLIMATE

LESSONS FROM SUCCESS STORIES

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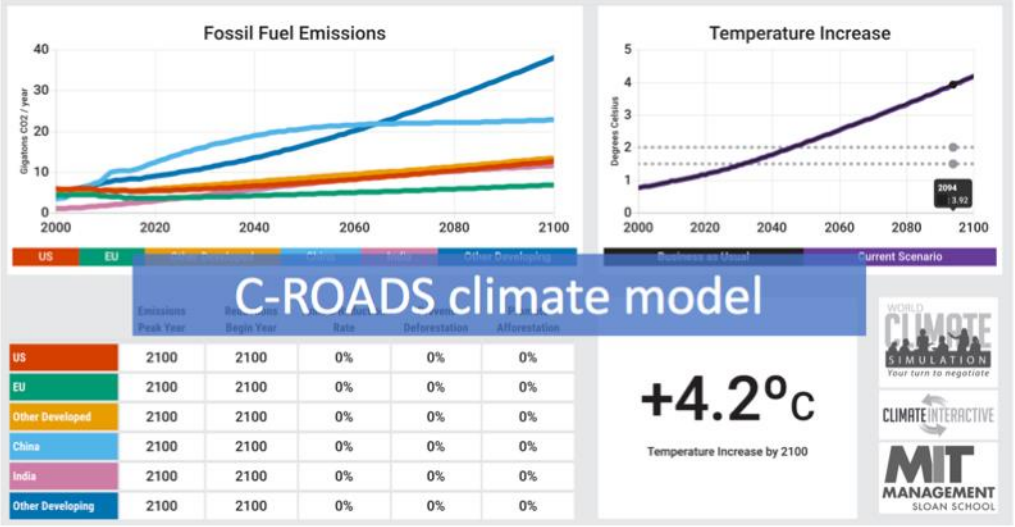
Forbes McGain

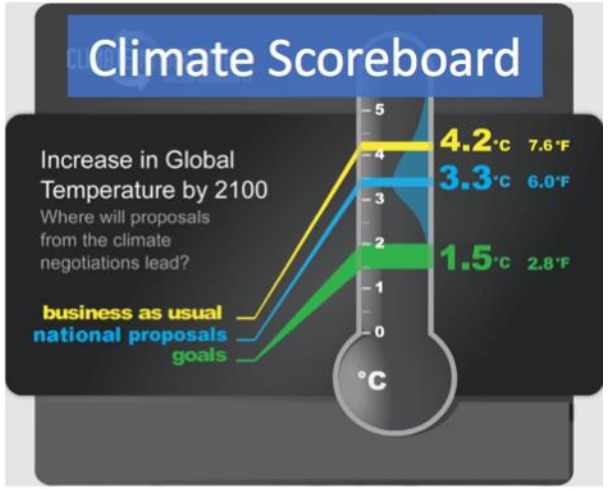
Webinar: 16 July 2018

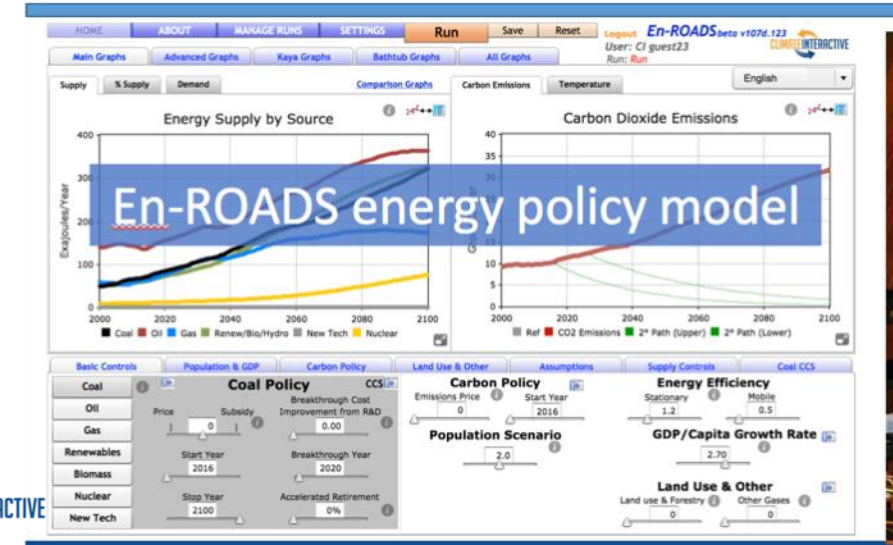
CLIMATE INTERACTIVE

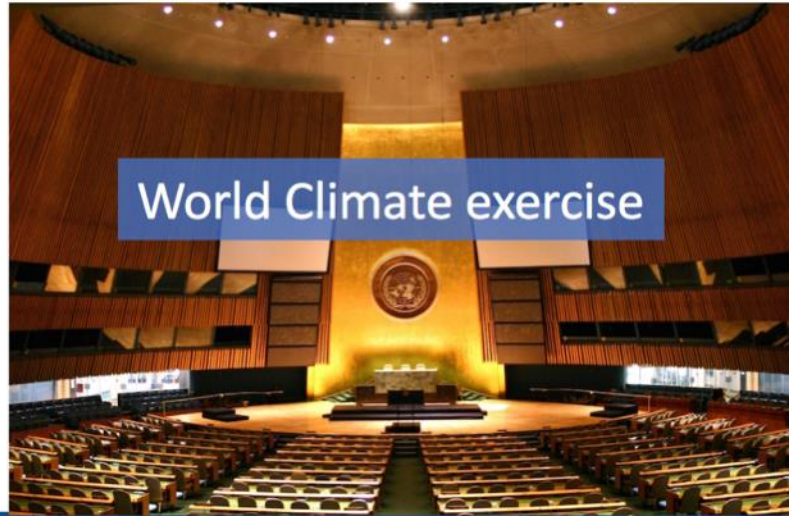
Our interactive tools help people **see what works** to address climate change and related issues like energy, water, and disaster risk reduction.



	Emissions Peak Year	Emissions Begin Year	Emissions Rate	Deforestation	Afforestation
US	2100	2100	0%	0%	0%
EU	2100	2100	0%	0%	0%
Other Developed	2100	2100	0%	0%	0%
China	2100	2100	0%	0%	0%
India	2100	2100	0%	0%	0%
Other Developing	2100	2100	0%	0%	0%







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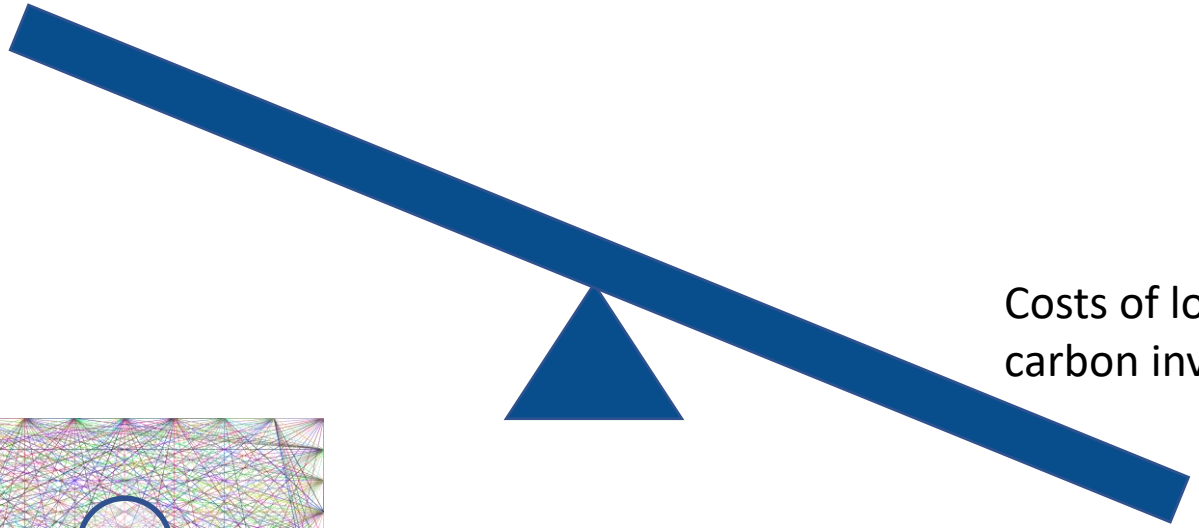
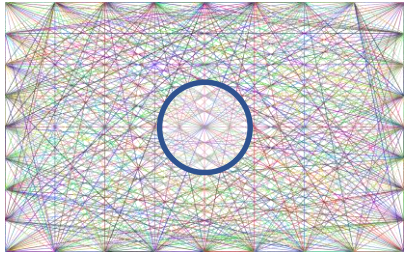
Avoided global climate change, decades from now



Costs of low-carbon investment

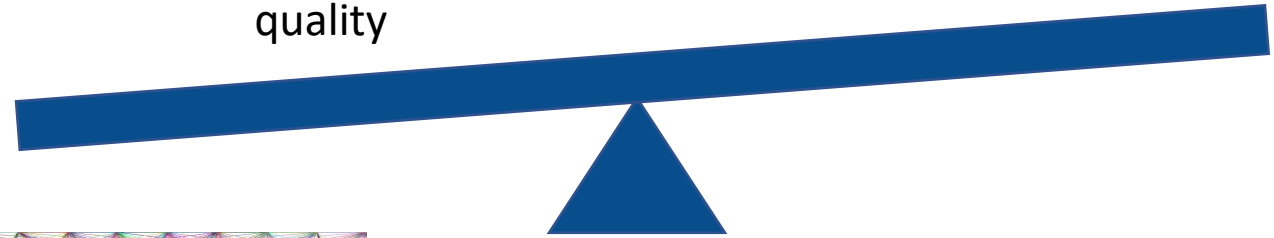


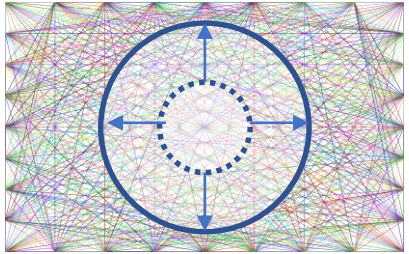
Avoided global climate change, decades from now

+

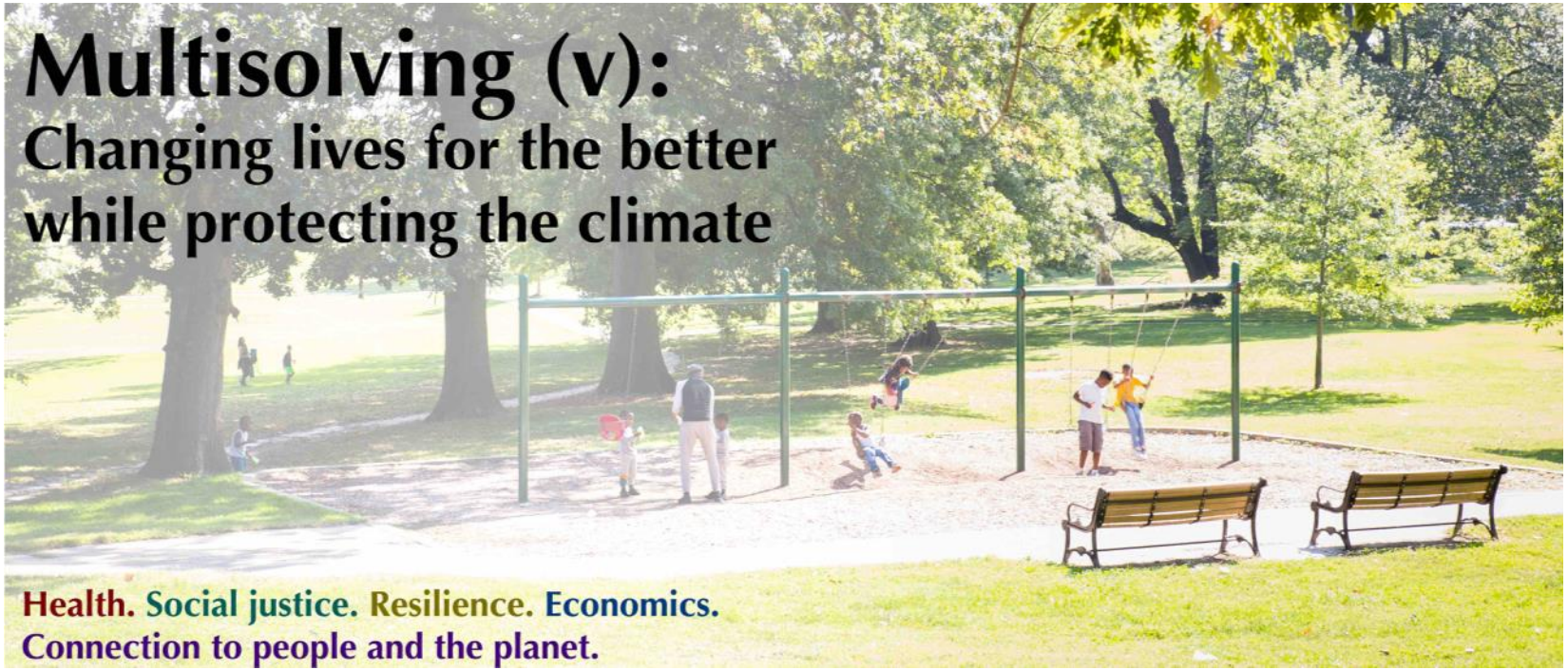
Jobs, health benefits, equity community cohesion, resilience, food, air and water quality

Costs of low-carbon investment





CLIMATE INTERACTIVE



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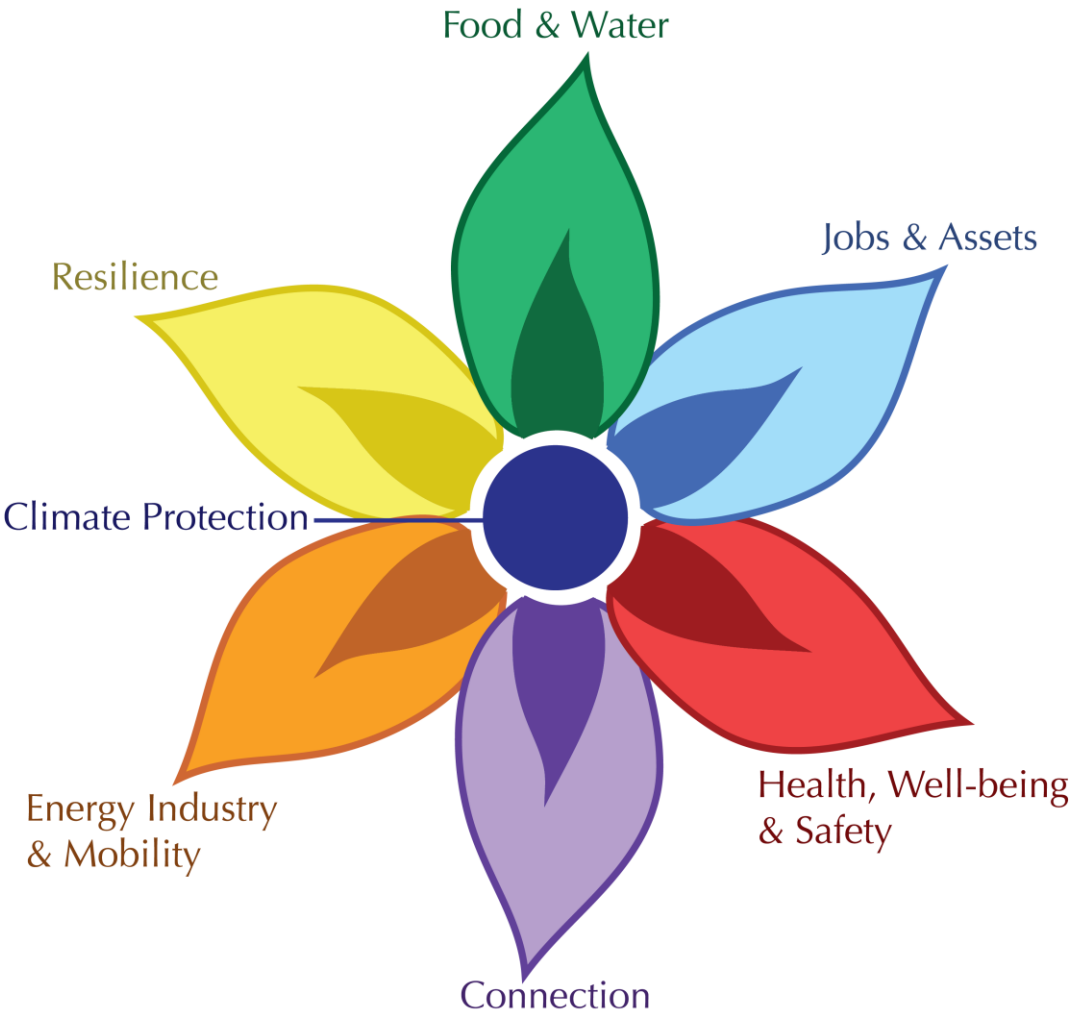
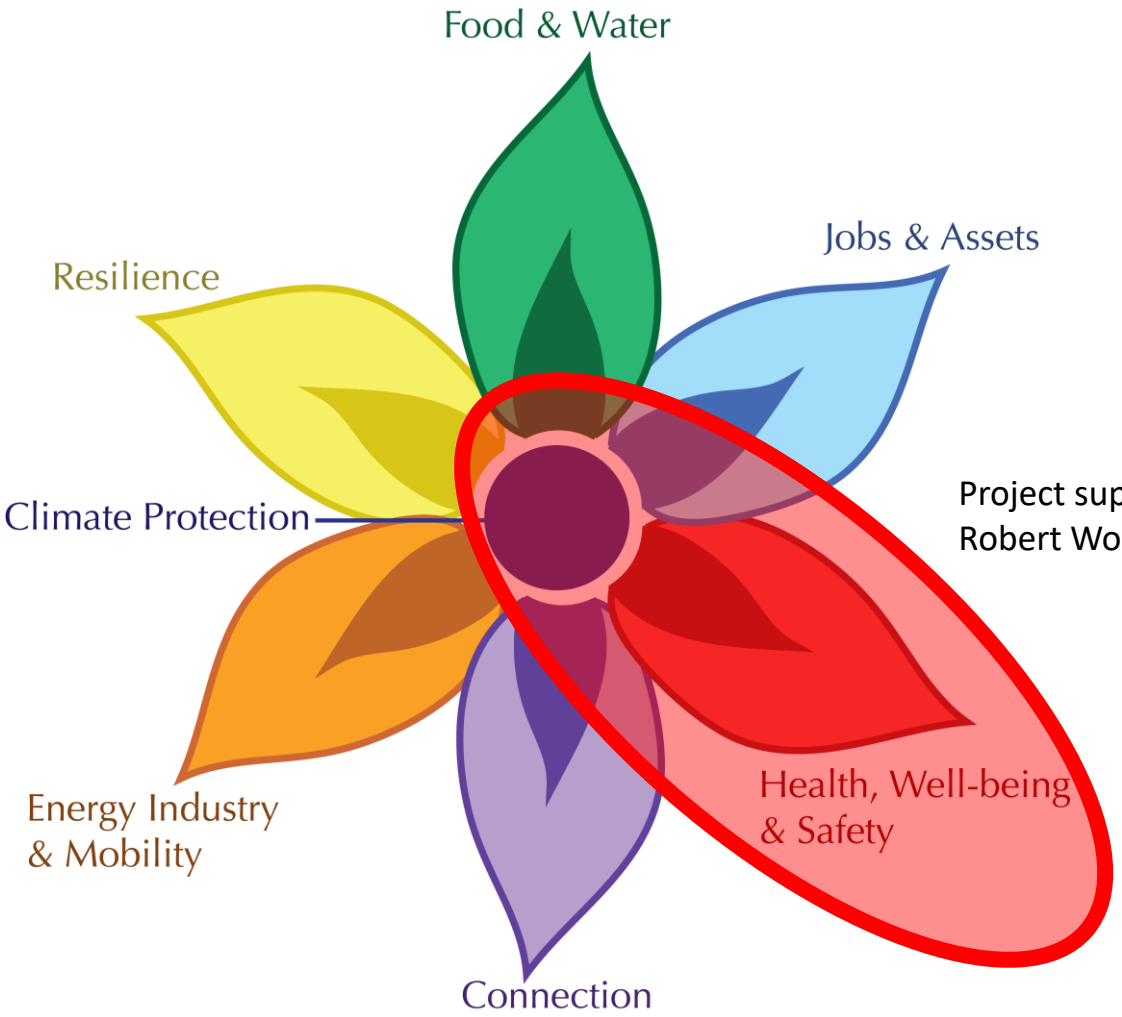

Food & Water
Jobs & Assets
Resilience
Climate Protection
Energy Industry
& Mobility
Health, Well-being
& Safety
Connection



Project supported by the
Robert Wood Johnson Foundation

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So, why isn't there more multisolving for climate and health?

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Obstacles to Multisolving

SIX OBSTACLES TO MULTISOLVING FOR CLIMATE AND HEALTH
1. Disciplinary silos
2. Budgetary silos
3. Jurisdictional silos
4. Weak community engagement skills
5. Challenge of funding prevention vs care
6. Long-term benefits within systems oriented toward short-term decision making

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What can we learn from the ‘bright spots’ around the world where policies are tackling health and climate change together?

The Search for Case Studies

Global scan gathered **106 examples** and information on the:

- Context (social, political, technological),
- Collaboration, and
- Change achieved by the policies

Criteria

- Diversity of scales, regions, sectors
- Intentional crossing of typical sector boundaries

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Selected Case Studies

Green Curtains	Japan	Country	Nature, Buildings	Plants edible or decorative climbing plants on exterior of buildings
Walk to School	England	Country	Transport	Encourages parents, teachers, and students to walk to school
Warm Up New Zealand	New Zealand	Country	Buildings	Retrofits houses to reduce cold-related illnesses, energy costs, and carbon emissions
Ciclovía Bogotá	Colombia	City	Transport	Closes over 120 km of roadway to cars on Sundays and holidays
Healthy Streets for London	England	City	Transport	Improves air quality, reduces congestion, and makes London healthier and more attractive
ProAire	Mexico	City	Transport	Unites multiple organizations to reach air quality goals
Espigoladors Gleaning Movement	Spain	Community	Food	Volunteers glean, distribute through food banks, and process food into jams, sauces, and soups
Healthy Meals for Patients and the Environment	Malaysia	Hospital	Food	Dialysis center serves vegetarian food and recycles all forms of waste
Operation TLC	England	Hospital	Energy	Encourages behaviors such as turning off equipment, closing doors, and allocating patient quiet time
Smarter Anesthetic Gases	Australia	Hospital	Waste	Hospitals switch to anesthetic gases that lower costs and emissions

Lucy Saunders – Healthy Streets for London

Lucy Saunders developed the Healthy Streets Approach for the Mayor of London's Transport Strategy. She is now leading the implementation of the Healthy Streets Approach, developing and sharing tools for delivering Healthy Streets. She has worked with Transport for London for the past 5 years, delivering their award-winning Health Action Plan. Lucy is a Fellow of the UK Faculty of Public Health.

Healthy Streets in London

Lucy Saunders

The story so far...

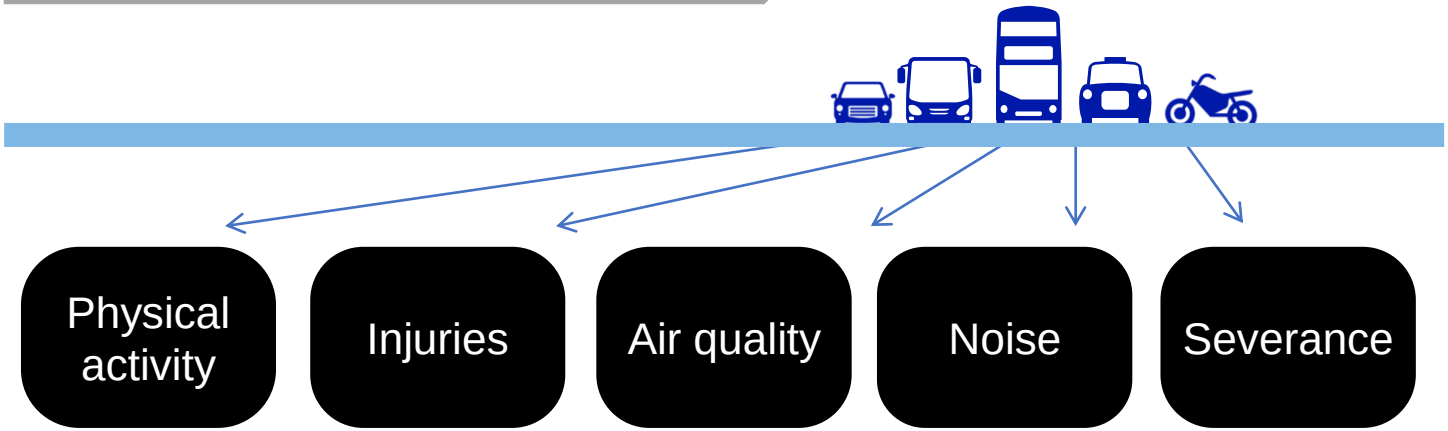
2018

2014

1. Pick the priorities

Source: Lucy Saunders

The biggest health impacts of the transport system relate to <u>motorised road transport</u>



How do we address these?

2. Frame the priorities

The Healthy Streets Approach

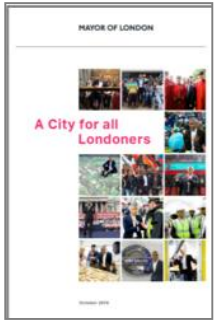
Source: Lucy Saunders

3. Find a champion

Mayor’s Vision for Healthy Streets

“My vision to create **‘Healthy Streets’** aims to reduce traffic, pollution and noise, create more attractive, accessible and people-friendly streets where everybody can enjoy spending time and being physically active, and ultimately to **improve people’s health”**.

A City for All Londoners - October 2016



4. Set your vision

Source: Lucy Saunders

Healthy Streets for London

- Putting people & their health at the heart of decision making
- Clear shift away from private car use
- 3 levels of delivery
- Measuring success against the 10 Healthy Streets Indicators

5. Embed the vision in policy

Healthy Streets is being embedded across the Mayor's strategies...

MAYOR OF LONDON

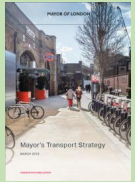
London Plan

Health Inequalities Strategy

London Environment Strategy

Source: Lucy Saunders

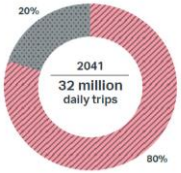
Policing and Crime Plan



Mayor's Transport Strategy

London Housing Strategy

Ambitious targets for delivering Healthy Streets



80% sustainable mode share by 2041

20 minutes of active travel for all by 2041

Vision zero for road danger by 2041

Zero emission by 2050

10% less in central London am peak 2026

3 million fewer private car trips by 2041

6. Set a plan for delivery

Transport for London Business Plan

We are working with the boroughs on hundreds of schemes across London that make it easier to walk, cycle or use public transport.

Cycle Superhighways

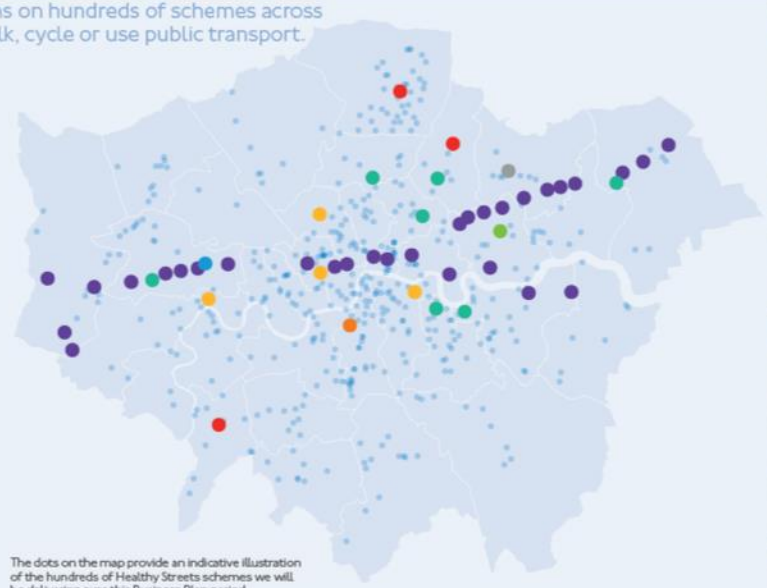
Camden, Ealing, Greenwich, Hammersmith & Fulham, Hounslow, Kensington & Chelsea, Lewisham, Southwark and Westminster

Clear and safe segregated routes across London

Vauxhall Gyratory

Wandsworth

Returning to two-way roads for better walking and cycling



The dots on the map provide an indicative illustration of the hundreds of Healthy Streets schemes we will be delivering over this Business Plan period.

Elizabeth line

Brentwood, Ealing, Greenwich Havering, Hillingdon, Islington, Newham, Redbridge, Tower Hamlets and Westminster

Improved public areas and interchanges outside 18 outer London Elizabeth line stations

Liveable Neighbourhoods programme

Ealing, Haringey, Waltham Forest, Hackney, Havering, Greenwich and Lewisham

Grant funding for borough schemes to reduce car trips, improve health and air quality

Charlie Brown's Roundabout

Redbridge

New pedestrian and cycle crossings, and fewer delays to traffic and buses

Gunnersbury Avenue

Hounslow

Major street improvements for safer for walking and cycling

Mini-Hollands

Enfield, Kingston and Waltham Forest

Three outer boroughs with a network of cycle routes

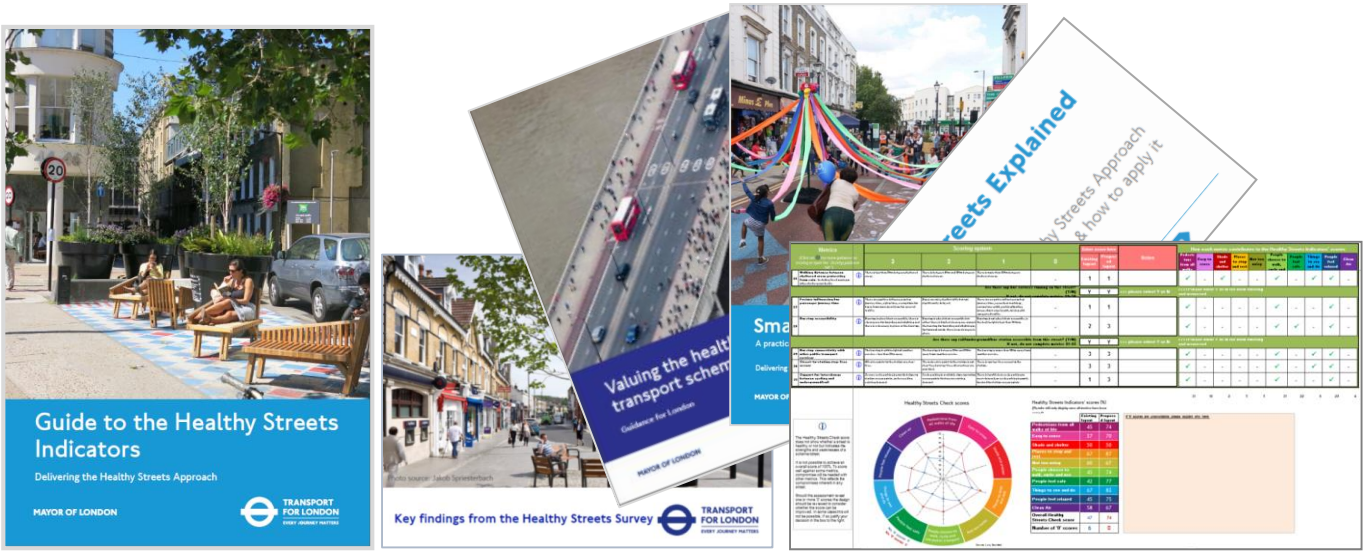
Stratford Town Centre

Newham

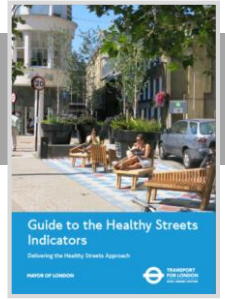
A safer, more attractive town centre for people to spend time in

7. Create tools to support

Healthy Streets Toolkit



Guide to the Healthy Streets Indicators



Easy to cross

Streets without suitable crossing facilities make walking and cycling less appealing. They can be a significant barrier to some people travelling on foot or bike. The types of crossing needed will vary, but on all streets it should be easy for people of all ages and abilities to find a safe place to cross without having to go out of their way.

Questions

- Can people cross the road safely at the point they would find most convenient?
- Does the amount and speed of traffic make it difficult for people to cross the road?
- Are the crossings provided suitable for the type of street, the amount of traffic and nearby uses eg doctor's surgery or school?
- Are crossings accessible to everyone?
- Do people need to walk to a junction to find a safe and accessible place to cross?
- Can people walking and cycling pedestrians and cyclists cross safely, directly and comfortably at junctions?
- Are people waiting a long time for a green man at pedestrian crossings?
- Is there enough time for everyone to cross without feeling rushed, including mobility impaired people or people crossing with children?
- Is there good visibility so that people crossing can see oncoming traffic and be seen?
- Where pavements get crowded, is there enough space for people to wait and are crossings wide enough for the amount of people using them?
- Could crossings where people have to wait on an island in the middle of the road be made more comfortable to use?
- Have the entrances to side streets been narrowed and raised to pavement level to give clear priority to people walking and make drivers slow down?
- Does the amount and location of car parking and loading bays make it difficult for people to cross the road?

10

Combining zebra and cycle crossings gives priority to people using a walking and cycling route where it crosses another street. Crossings should be positioned to provide a direct connection and avoid the need for people to go out of their way to cross.

Lower Clapton Road, LB Hackney

A raised area at the midpoint of a street makes it possible for mobility impaired people, and those pushing buggies or travelling with luggage to cross easily and safely. It also helps slow traffic.

Langham Road, LB Haringey

Raising and narrowing the carriageway at side roads helps to slow traffic and makes it easier for people walking to cross.

Catford Road, LB Lewisham

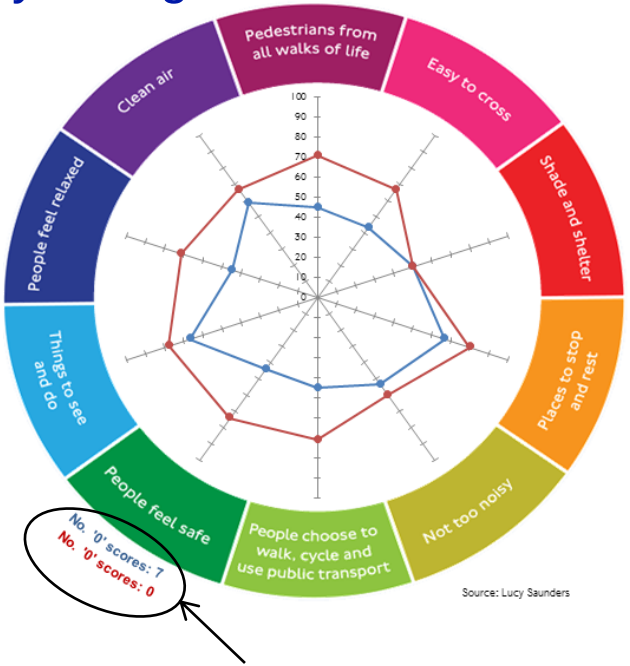
Crossings should be as direct as possible but on streets with very heavy traffic it is sometimes necessary to split pedestrian crossings, providing space for people to wait in the middle of the road. This space needs to be large enough to comfortably accommodate people waiting to cross.

Wood Green High Road, LB Haringey

11

Healthy Streets Check for Designers

Example
Archway, Islington



Number of known road danger issues before & after

HEAT calculations

- Online tool for monetising health benefits of uplift in walking and cycling
- TfL is applying this tool to its schemes

Example Leonard Circus, Hackney

Before

After

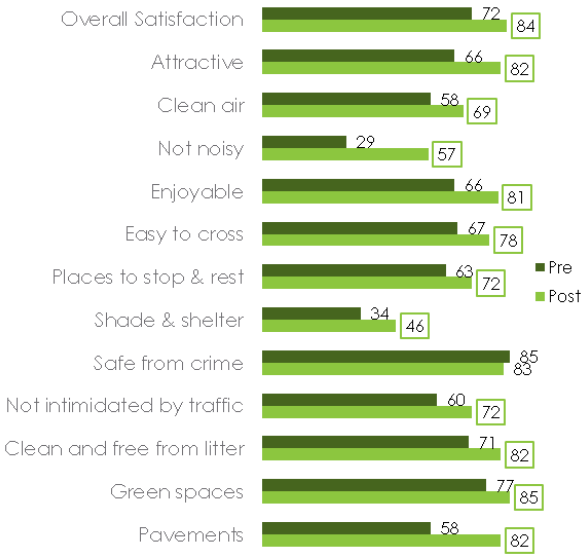
Monetised health benefit of these improvements

= £1762,000

= £225,000

Healthy Streets Survey

Example Portsmouth road, Kingston



Small Change, Big Impact

A delivery tool

- Practical guide for implementing light touch and temporary projects
- Tips on how to overcome hurdles
- Technical guidance on delivery
- Includes case studies to inspire you
- Links to other tools and resources
- Directory and glossary

9. Provide training

Healthy Streets Workshops

10. Track progress

Corporate scorecard

2017/18

Safety & Operations
Killed & serious injuries on the roads
Total injuries on public transport services
Network capacity
Road / Bus / Underground reliability
Project delivery
Customer
Customer satisfaction
Total public transport trips
NO_2 concentrations
Affordable housing
Step-free journeys on the Tube
People
Workforce representativeness, engagement
Financial
Operating surplus, cash

2018/19

Healthy Streets and Healthy People	
Killed & serious injuries on the roads (and on / by buses)	S & O
Total injuries on public transport services	S & O
Operational improvements to sustainable travel	S & O
Euro VI bus fleet size	S & O
Healthy Streets Check Scores	S & O
A good public transport experience	S & O
Bus / Underground reliability	S & O
Customer satisfaction	C
Additional time for step-free journeys	C
New Homes and Jobs	C
Affordable housing	C
Mode share	C
Sustainable mode-share improvement	C
All transport strategy themes	C
Project delivery (including Crossrail)	C
People	
Workforce representativeness, inclusion, engagement	
Financial	
Operating surplus, Investment programme cost	

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EVERY JOURNEY MATTERS

Larissa Lockwood – Operation TLC

Larissa Lockwood leads the coordination of events across the UK for Global Action Plan's Clean Air Day. From helping establish the NHS Sustainable Development Unit and drafting the first NHS Carbon Reduction Strategy to managing Global Action Plan's award-winning Operation TLC program: Larissa is at the forefront of the movement promoting just how intertwined our environment and our health really are.

Best patient environment and lower energy bills

Operation TLC

Creating Healing Environments

Larissa Lockwood
Head of Health
Global Action Plan

GLOBAL ACTION PLAN

NATIONAL CSR AWARDS WINNER 2016

2015 ENVIRONMENT AND ENERGY AWARDS

Ashden Award winner 2014

A charity that enables people to see, believe and act on the big win/win - that what is better for us is better for our planet

NATIONAL AIR QUALITY Awards 2017 2017 WINNER

theguardian Sustainable Business Awards 2014 Winner

Operation TLC is about front-line staff taking simple actions to create more restful and comfortable places for patients. It focuses on achieving the best temperature, managing light levels, and reducing noise in the day and night.

Operation TLC

Creating Healing Environments

Where it all began

Barts Health NHS
NHS Trust

In 2012, Barts Health NHS Trust asked a question:

How can busy, patient-dedicated staff reduce hospital energy bills?

What actions could be taken?

HIGH PERCENTAGE OF LIGHTS OFTEN LEFT ON WITHOUT NEED

EQUIPMENT ON UNNECESSARILY, OR SURPLUS TO REQUIREMENTS

LACK OF CONTROL OVER TEMPERATURE MANAGEMENT

Operation TLC
Creating Healing Environments

What stopped staff taking these actions?

The toughest question:

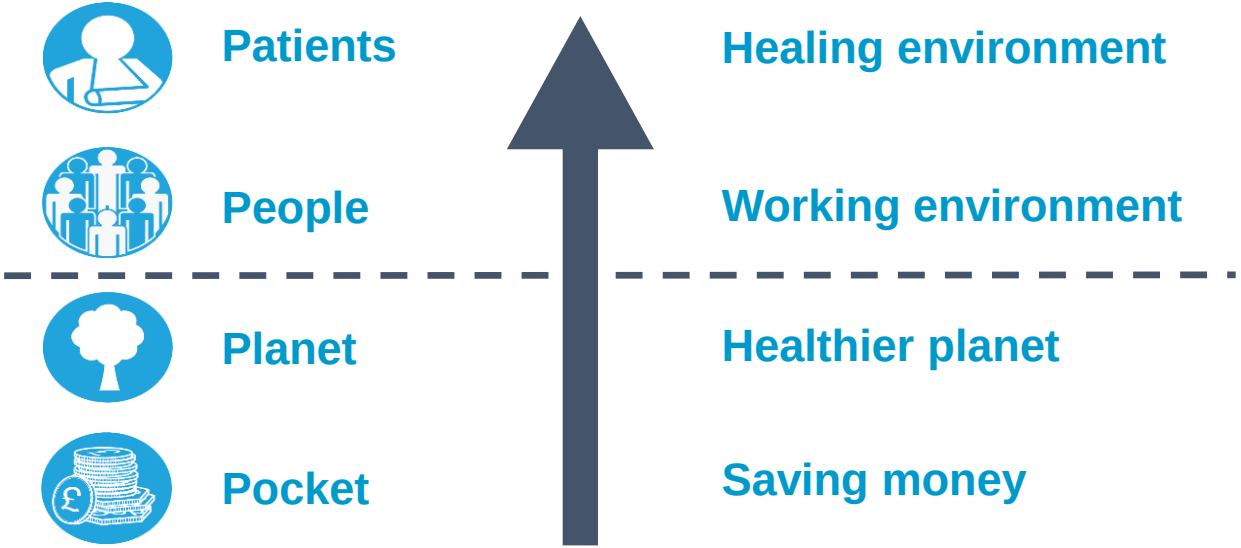
What would motivate healthcare staff to take energy saving action?

Prime motivation for staff = patient care

Aligning energy actions
with patient care

Operation TLC
Creating Healing Environments

Staff Motivations: Making the immediate hospital environment more comfortable for patients and staff



Operation TLC
Creating Healing Environments

Available evidence of the benefits of better hospital building conditions

Increasing natural light exposure

- Patients in dull rooms in a cardiac intensive care unit had a mortality rate of 11.6% vs 7.2% for those in sunny rooms. That's a 60% higher mortality rate. [Canada, n=628] (Beauchemin and Hays, 1998)
- Increased natural light in mental health patient rooms resulted in 3.7 day shorter hospital stay on average. [Italy n=187] (Benedetti et al, 2001)
- Cervical and lumbar spinal surgeries patients who received more natural light saw a 22% decrease in painkilling medicine use. [UK n=89] (Walch et al, 2005)

What happened when we started to encourage change?

1. We found ourselves doing unusual things

2. Staff started to see the benefits

THIS MORNING ALL OUR PATIENTS WERE JOLLY AT 6:30 AM. THEY HAD HAD A GOOD NIGHT'S SLEEP AND WERE MORE READY TO ACCEPT MEDICATION

NURSE, FRIMLEY PARK NHS FOUNDATION TRUST

TLC HAS IMPROVED THE QUALITY OF THE RELATIONSHIP BETWEEN US AND OUR PATIENTS

NIGEL ROSE, PAEDIATRIC WARD MANAGER

IT'S REFRESHING TO SEE SOMETHING BEING DONE ABOUT WELL-BEING. IT IS COMMON FOR STAFF TO GET HEADACHES AND MIGRAINES FROM THE ENVIRONMENT AT WORK

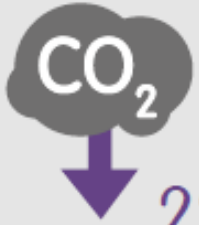
LAB TECHNICIAN, GREAT ORMOND STREET

3. Started to save money and carbon

Financial savings

£500,000

a year saving (3%) from combined energy bill of £17m



2200t/CO2

2200 tonnes of carbon saved each year – the same as 35,000 car journeys from London to Manchester

Operation TLC
Creating Healing Environments

4. Others began to adopt the idea

theguardian Sustainable Business Awards 2014 Winner

Ashden Award winner 2014

Frimley Health NHS Foundation Trust

Great Ormond Street Hospital for Children NHS Trust

Blackpool Teaching Hospitals NHS Foundation Trust

Kent and Medway NHS and Social Care Partnership Trust

King's College Hospital NHS Foundation Trust

Barts Health NHS Trust

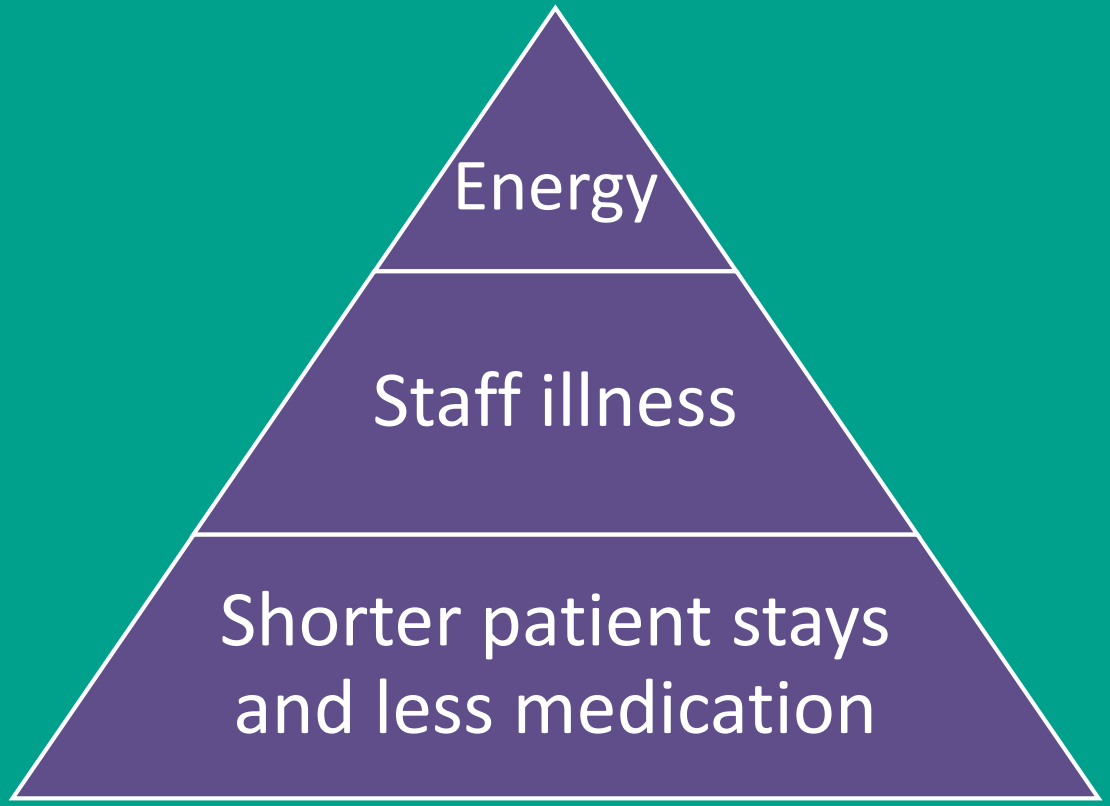
Operation TLC Creating Healing Environments

Operation TLC
Creating Healing Environments

Consolidate all benefits into one business case

- ✓ Benefits patient sleep, rest and recovery
- ✓ Attractive financial payback
- ✓ Boosts staff engagement and happiness with hospital conditions
- ✓ Immediate action to address financial overspend that improves quality
- ✓ Reduces carbon emissions and environmental impact

The bigger financial picture



Operation TLC
Creating Healing Environments

The secrets to a successful Operation TLC in your Trust

A successful Operation TLC programme brings together staff from the estates and nursing teams with a long term vision, a commitment to play their part and dedication to help each other overcome any barriers to making the buildings the best they can be. Follow these six secrets to create healing and energy efficient environments for the long term.

1. Have a champion in every area

Each ward or department has a champion, who is responsible for upholding best practice with their teams, track and communicate progress, and escalate any issues. Champions receive short training without leaving their stations.

2. Promote the benefits of a restful environment

Ensure that staff understand that light, temperature and noise profoundly affect patients' sleep, rest, recovery and need for pain-relief. They also understand such conditions aid colleagues' wellbeing, calmness and focus. This understanding is created through effective communication of scientific evidence.

3. Created tailored action lists

Two major considerations determine the best practice for creating restful conditions in each location - the way the building works and the requirements of patients. The Estates Department and lead nurse respectively know the buildings and patients best, and combine to define a tailored action list for each location.

4. Track progress

Track progress with a walk around, patients interviews and nurse feedback. Energy savings can be tracked by sub-metering and light meters track total energy savings.

5. Communicate best practice

Best practice is pushed heavily to overcome old habits at the very beginning, in one organisation-wide campaign. This includes messages from directors, face-to-face department visits, agenda item in key meetings (e.g. senior sisters forum), posters and stickers, staff magazines and any other appropriate comms channels.

6. Long term embedding through systems and maintenence

The Chief Nurse and Estates Director receive quarterly progress updates. Champions are listened to, thanked and new ones found if a champion leaves. Existing processes such as induction, training, personal objectives, and standing meeting agenda items ensure long-standing focus on Operation TLC. Internal comms share regular successes to maintain appreciation that managing hospital spaces directly affects patient experience.

Operation TLC
Creating Healing Environments

Creating Healing Environments

www.greenhospitals.net/new-member-resources-saving-energy-through-behavior-change/

Larissa.Lockwood@globalactionplan.org.uk

Forbes McGain – Smarter Anesthetic Gases

Dr. Forbes McGain is an anesthetist and intensive care physician at Western Health Hospital, Melbourne, Australia and Honorary Associate Professor, School of Medicine, University of Sydney. He completed a PhD in 2016 studying hospital sustainability within the operating suite and intensive care unit. Forbes is passionate about spreading sustainability in medicine.

Reducing Greenhouse Gas Emissions of Anaesthetic Gases in the OR

Forbes McGain
Western Health, Melbourne
Sydney University School of Public Health,
Doctors for the Environment, Australia

Thanks to Rick Horton (WH Director of Anaesthesia) et al

DEA

Western Health

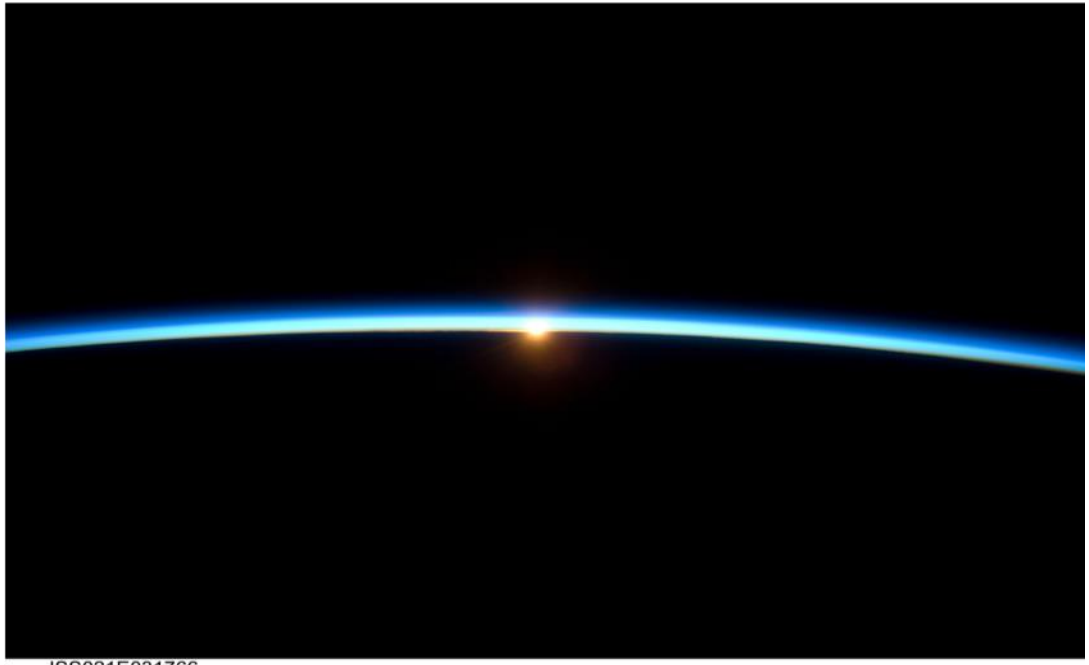
THE UNIVERSITY OF SYDNEY

The Environmental Effects of One Doctor

Work Matters MORE than Home…

The Aims of this Talk are to Answer…

1. What was the biggest challenge you addressed in this case study/project?
2. What did you do to measure results?
3. What did you do to cultivate partnerships?
4. What do you wish you had known at the start of the project?
5. If you had to choose one factor that led to your success, what would it be?
6. What advice would you give to others hoping to make similar changes?



The Thin Blue Line

1. What was the biggest challenge you addressed in this case study/project?

A Gentle Introduction to Why Anaesthetic Gases are Environmentally Problematic…

Table 4. Atmospheric Lifetimes, Radiative Properties and Estimated Global Warming Potentials for Isoflurane, Desflurane and Devoflurane

	isoflurane $CF_3CHClOCHF_2$	desflurane $CF_3CHFCOCHF_2$	sevoflurane $(CF_3)_2CHOCH_2F$
atmospheric lifetime (years)	3.2	14	1.1
radiative efficiency[1] ($W\ m^{-2}\ ppb^{-1}$)	0.453	0.469	0.351
global warming potentials			
20 year time horizon	1800	6810	440
100 year time horizon	**510**	**2540**	**130**
500 year time horizon	160	770	40

N_2O 100 year Global Warming Potential = 300

Western Health

The Hummer-16litres petrol/100km
Desflurane- GWP= 2,540
At 1 litre/min., one hour=200km in the Hummer
$N_2$0 at 1 litre/minute = 100km 'Hummering'

Western Health

22 ml Desflurane
= 1 hour…

=600 ml Sevoflurane

=30 litres of petrol

Western Health

Gases

1. Use Low Flow!
2. Replacement of desflurane with sevoflurane from 15% to 5% at our 15 theatre hospitals led to…
   i. $35,000 savings p.a.
   ii. 35 return flights from Melbourne to London
3. Similar environmental savings if you convert from N_2O to sevoflurane, but NO financial savings (nitrous is cheap!)…

Western Health

2. What did you do to Measure the Results?

Anaesthetic Agent	2011	2015	2016	2017
Desflurane 240mL bottles	**198**	**82**	**55**	**18**
Sevoflurane 250mL bottles	**1,584**	**1,546**	**1,552**	**1,427**
ISOFLURANE 250mL bottles		8	6	4
Propofol 1000MG 100mL injectate		123	110	415
Propofol 500mg 50mL injectate		741	2,009	4,727
Nitrous Oxide (M3)	**2,948**		**2,842**	**3,135**

Western Health

3. What did you do to cultivate partnerships?

i. 2012-From the outset deliberated, cajoled and considered
   - the Director of Anaesthesia and others who would at least be supportive

ii. Gradually led to a group of anaesthetists
   - Of ‘no desflurane’ (’normalised behaviour’)

iii. Education regarding the GWPs of anaesthetic gases

iv. 2016- Policy to use desflurane ’only when absolutely required’ and removed from the anaesthetic machine

Western Health

4. What do you wish you had known at the start of the project?

i. The problem of Nitrous Oxide!
ii. Much greater (10 fold) problem than desflurane, approximately ¼ due to obstetrics…
iii. N_2O is harder to consider as it is cheaper than any of the volatile anaesthetics…

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5. If you had to choose one factor that led to your success, what would it be?

- Anaesthetists who were interested
  i. in the environment,
  ii. climate change, and
  iii. making change!

Western Health

6. What advice would you give to others hoping to make similar changes?

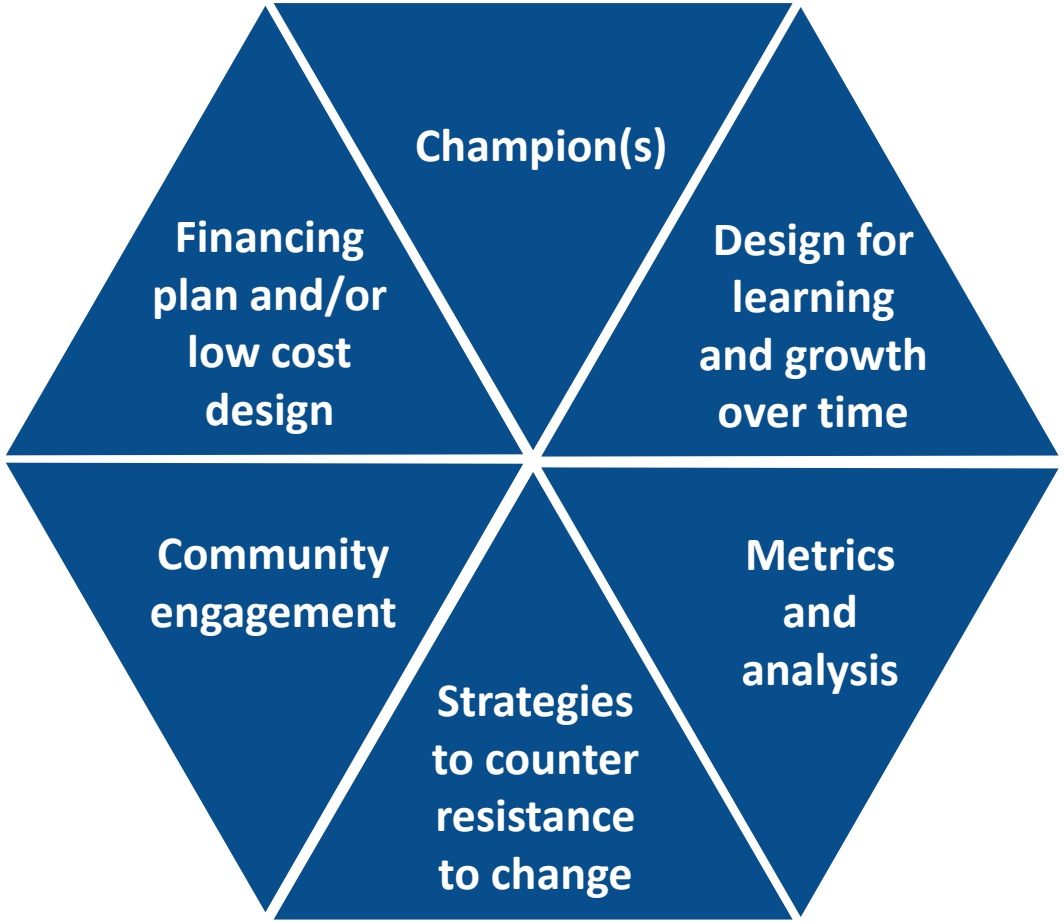
i. Find those who are willing to at least be supportive of your endeavours
ii. Pilot change first
iii. Normalise this change
iv. Educate
v. Make policy change…
vi. And then repeat (elsewhere, with other projects, with others)…

With Further Thanks To

- Western Health's:
  - Operating Theatres' Anaesthetists
  - Nurses
  - Catherine O'Shea and the Sustainability Committee

Western Health

Contributors to Success



CLIMATE INTERACTIVE

Recommendations to Multisolve in Your Own Work

- Start small, start now
- Document as wide an array of benefits and costs as you can, and share your results, good or bad
- Experiment
- Build a communications strategy
- Seek ways to embed your innovations
  - SOPs/habits/norms
  - Regulations and Laws
  - Ongoing sustainable financial flows
    - → Reinvest initial savings in multisolving program and capability building
- Expect growth and scale up, even if you don't know where/how

CLIMATE INTERACTIVE

Recommendations to Encourage Multisolving

- Encourage a common identity and a community of practice
- Recognize that the ‘replicable unit’ may be the approach, rather than specific projects
  - The projects appeared to be very path-dependent and opportunistic – the habits of collaboration, learning, measuring co-benefits, investing in communications may be the most transferable, rather than the particulars of a specific project
- Support small seeds – none of the projects emerged initially as a full collaboration
- Support documentation of co-benefits very early on
- Allow for experimentation, evolution over time, and a need for trust-building and communication

Connect With Us – and Other Multisolvers

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Thank You!

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